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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,543	12/04/2003	Yiping Hu	H0004326	8757

7590 03/17/2006

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EXAMINER

HITESHEW, FELISA CARLA

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,543

Applicant(s)

HU ET AL.

Examiner

Felisa C. Hiteshew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 and 33 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-17 and 25-31 is/are rejected.
- 7) ☒ Claim(s) 7, 8 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>see attached paper</u> . | 6) <input type="checkbox"/> Other: ____. |

Information Disclosure Statement

The PTOL 1449 has been received, reviewed and considered.

Claim Rejections - 35 USC § 112

1. Claims 4,6 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, lines 6-7 is being considered vague and indefinite in the use of the Trademark terminology "...RENE N5 and RENE N6...".

Claim 6, lines 16-17 is being considered vague and indefinite in the use of the Trademark terminology "...HASTELLOY X, INCO.713...".

Claim 32, lines 15, 16, and 21-22 is being considered vague and indefinite in the use of the Trademark terminology "...SC 180, RENE N5... MAR M247...".

"The use of trademark or trade names was found to be indefinite". *Ex parte Kattwinkel* 12 USPQ 11 (BPAI 1931).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-6, 9-17 and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurz, et al (U.S. Patent No. 6,024,792).

Kurz. et al teaches a method for manufacturing monocrystalline structures, parts or work pieces of metallic super-alloys on substrates with a monocrystalline structure on the surface of the substrate which is melted with an energy beam of high energy density from an energy source. So-called super-alloys on a nickel (Ni), cobalt (Co) or iron (Fe) basis are used amongst others as alloys, for example, turbine blades. It is possible with the new method to build up on the directionally solidified structure of a substrate, one or more layers or a body of a work piece with the same directionally solidified structure as the substrate. (see column 1, lines 50-68). This is an epitaxial method in which the directed crystalline structure of the substrate is adopted by the layer or the layers which

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are built up. For this a globulitic structure must be avoided by a corresponding process control. Laser beams, electron beams and also methods such as e.g. Micro-TIG or plasma methods are suitable as the energy or heat source for carrying out the method, that is, energy sources by means of which it is possible to introduce large amounts of energy onto a very small area or into a small volume in a concentrated manner. The beam of high energy and energy density is directed toward the surface of the substrate so that the surface layer of the substrate melts lightly. The material is supplied to the working region of the beam in powder form or in the form of a wire. The melting of this supplied material can be carried out in the liquid puddle of the melted surface layer or already on the way to the liquid puddle. The process is preferably carried out under inert gas and/or in a vacuum (see column 2, lines 1-10 and lines 29-68, respectively). Kurz, et al also teaches the use of CMSX-4 as a monocrystalline structure (see column 3, lines 18-26). Other super-alloys are listed in column 5, lines 41-45).

As for claims 10, 11 and 27, Kurz, et al does not exactly teach the use of a co-axial nozzle for a high power energy source. However, in the absence of unobvious results, it would have been obvious to modify and use a single nozzle high power energy source. Since Apparatus limitations may have little weight in process claims. In re Tarcy-Honoch 158 USPQ 141, 150; Stalego v. Heymes 120 USPQ 473, 478 (CCPA); Ex Parte Hart 117 USPQ 193; In re Freeman 44 USPQ 116 (CCPA); In re Sweeney 72 USPQ 501 (CCPA). Kurz, et al also does not exactly teach the powder feeder rates for welding single crystal superalloys. However, it would have been obvious to one of ordinary skill in the art to modify and optimize the process parameter limitations in order


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to ensure proper orientation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 3:00 PM, off first Friday and 5:30 AM. –2 PM on second Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith, can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system. see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).


FELISA HITESHEW
PRIMARY EXAMINER
10/17/08